

NATIONAL PARK SERVICE

(1001-3 P 12:59

1988 BIG BEND NATIONAL PARK
SOUTH RIM AND CASA GRANDE EYRIE REPORT

by
Charles Kilpatrick

PROPERTY OF
Science and Resources Management
Big Bend National Park, Texas

1988 SOUTH RIM EYRIE LOCATION

The pair of peregrine falcons (*Falco peregrinus*) occupying the south rim territory this year chose an eyrie well below the active eyrie found in 1985. This year's eyrie location is on a cliff face approximately 200 meters below where the trail passes over the eyrie and approximately 130 meters below and to the east of the 1985 eyrie. (See map number 1) The 1988 eyrie is not visible from any location on the top of the south rim. Due to the location of the eyrie and the long distance of my observations from the top of the south rim detailed breeding behavior data was unattainable. The exact eyrie location was determined from below the south rim on 16 May.

Breeding Chronology of South Rim Eyrie

Courtship Behavior

Observations of the south rim pair began on 1 April. On this date courtship was well underway. The pair was exhibiting an affinity for two locations on the eastern portion of the south rim. One of these locations will be referred to as the pinnacle face, which is the closer of the two locations to the 1985 eyrie. The other location will be referred to as the east buttress face. It was this second location that the pair chose for this years eyrie. See appendix A. for detailed courtship observations.

Courtship flight displays were observed beginning on 1 April. These consisted of undulating flights and power dives performed in front of the pinnacle face and the eastern portion of the south rim. All six copulations that were observed took place on or near the pinnacle face. The female was observed soliciting prey transfers on two occasions, exhibiting the flutter glide flying posture. Only one prey transfer was observed which took place on 5 May.

Egg Laying and Incubation

The actual date of egg laying could not be determined due to the location of the scrape.

Beginning on 8 April no more copulations were observed and the birds localized their nesting behavior on the east buttress face. The male and female were not observed flying, or perched together except during prey transfers and incubation exchanges.

On 16 May a prey transfer and incubation exchange was observed and the actual eyrie ledge was located. At that time it didn't appear that the pair was brooding young.

Territorial Defense and Response To Other Raptors

The incidence of territorial aggression directed towards other raptors was significant in 1988. This was due to the presence of a pair of golden eagles (*Aquila chrysaetos*) to the east of the peregrine territory and a pair of red-tailed hawks (*Buteo jamaicensis*) to the west. The eagles were observed copulating and exhibiting courtship flight displays within two kilometers of the peregrine eyrie cliff. The red-tailed hawks were observed bringing prey to an area of the cliff below the observation point and also defending that area against other raptors. Neither of these species eyries were found although their behavior suggests they were nesting on the south rim.

The golden eagle territory appeared to overlap with the peregrine's territory and both species were frequently observed using the same air space. The spur ridge of the south rim was used by both species for perching sites and the eagles also copulated on it several times. This year's peregrine eyrie is within 10 meters of an old eagle's nest. See appendix B for detailed observations of interactions with other raptors. See map number 1 for the locations of other raptor territories.

Recreational Use of The South Rim and Peregrine Response

Visitation to the south rim of the Chisos Mountains is heaviest during late March and early April. This is a critical time during the peregrine's breeding cycle in Big Bend. The eastern section of the south rim trail is directly over the 1985 eyrie and the entire length of the cliff used by the peregrine's through courtship. With the trail closure in effect this year the peregrines exhibited typical courtship and breeding behavior. This observed behavior took place on or in front of the cliff portion within the closure area.

In trying to obtain breeding behavior data it was necessary to observe from a position within the trail closure. This position was not within sight of either end of the trail closure but was closer to the west closure area. It was impossible to obtain an accurate number of visitors to the trail closure areas.

The west trail closure area received the highest visitation to the section of the trail that is closed. This is due to the fact that this part of the South rim trail intersects with the Boot Springs trail. Visitors can proceed west at this intersection without retracing their route in the Chisos Mountains.

The closest backcountry campsite to this year's eyrie location is northeast number four. (See map for location) It was closed to the public on 24 April due to its close proximity.

The peregrines were never observed to be flushed or to exhibit disturbance type behaviors while visitors or myself were present at the west trail closure area. Courtship behavior was only observed when I was by myself at the west trail closure. This may be due to the timing of these behaviors rather than an indication

of more than one person's affect on the peregrine's disturbance tolerance. Copulations, mutual perching and scrape selection all occurred on the pinnacle face approximately 700 meters from the west trail closure. These behaviors occurred during the peak visitation period. The cliff face that the pair chose to actually nest on is no less than two kilometers away from the highest concentration of visitation to the outside of the trail closure area

CASA GRANDE TERRITORY

Observation began on 4 April and ended on 3 May with the peregrines moving their nesting activities to the Pinnacles area of the Chisos Basin on 6 May.

A total of seventy two hours were spent observing Casa Grande from various observation locations. At no time during this period did the peregrines exhibit breeding behaviors although they were observed in the area. See appendix (C) for detailed observations.

Chisos Basin Area Discription and Construction Activities

Chisos Basin human activity, located 600 meters below the summit of Casa Grande, is normally a collection of vehical noise, voices and the sounds associated with a lodge, a twenty four room motel, parking lot, ranger station, store, cottages, mobile home trailers, campground and ampitheater. During this peregrine breeding season, in addition to these activities, the construction of thirty eight more motel rooms and four houses were added to the overall noise and activity level.

The noise associated with this construction was different in character than the normal noise and activity level. Heavy machinery such as seven ton dump trucks, back hoes, cement trucks and fork lifts were used for this construction. On 11 April I personally heard heavy machinery sounds from this construction while I was sitting on the south rim 6 kilometers away.

These construction activities began during the onset of the peregrines breeding cycle and continued throughout the breeding season.

Response To Other Raptors

The pair occupying the Casa Grande territory exhibited very little territorial aggression towards other raptors. Courtship behavior had taken place prior to 4 April. After 4 April only one territorial defense occurred involving an osprey (*Pandion haliaetus*) on 14 April. The male peregrine stooped on the osprey one time in front the west face of Casa Grande. On the 2 May a red-tailed hawk (*Buteo jamaicensis*) soared, hovered and hunted in front of the west face within 325 meters of Casa Grande with no response from the peregrines.

PINNACLE EYRIE

On 6 May a peregrine was observed exhibiting the flutter glide prey transfer flight posture and treble whining near the Pinnacles in the Chisos Basin. The bird was later located perched on the eastern portion of the Pinnacles. This bird was an adult female and was observed in this area for two hours. On the morning of 10 May an adult female was observed in the incubation posture in a scrape in this same area.

The eyrie is located on a 33 meter cliff, facing west 100 meters from the Pinnacles Trail and directly above The Pinnacles backcountry campsites.

Observations of Casa Grande on 25 April produced two occasions when the male peregrine flew directly to the Pinnacles area out of sight. On one of these occasions the male stooped on the female over the top of Casa Grande then flew directly to the Pinnacles area.

Recreational Use of The Pinnacles Trail

The Pinnacles Trail is one of the main arteries leading into the Chisos Mountains of Big Bend National Park. It receives heavy day hiking and backpacking travel use during the spring of the year. The numbers of people using this trail are in the thousands. There are also three backcountry campsites directly below this year's eyrie cliff.

Incubation

Full incubation was in progress on 9 May. The scrape was not left uncovered except for prey transfers and incubation exchanges. The female appeared very active in the scrape. She would stand up, turn around and settle back down into the scrape frequently. She was alert to people passing by on the trail. She would lift her head and appeared to look in their direction.

APPENDIX A (Detailed Courtship Behavior)

1 April The male and female both landed on the pinnacle face out of sight and eechipping was heard. Later the male performed undulating flights in front of the eastern portion of the south rim.

2 April

1048 Copulation takes place on a snag 6 meters west of pinnacle face then is immediately followed by another copulation on a snag 12 meters above the first. The male then flies to the east of the east buttress and stoops out of sight. The female flies to pinnacle face and lands, eechips several times then flies out of sight to the east.

1115 Male performs power dives over east buttress, then stoops towards pinnacle face and lands. Male repeats power dives and lands on snag 12 meters above pinnacle face and vocalizes (waiks) several times.

1130 Male stoops on female flying in front of east buttress, then both birds land on east buttress.

1645 Male and female soar in front of pinnacle face, then female lands on lower snag next to pinnacle face and solicits copulation by exhibiting bowed posture on landing, male is perched on pinnacle face and exhibits no response.

1651 Female takes off and supplants male on upper pinnacle face, male flies back to perch female and copulates, female eechips several times, male take off and lands out of sight.

3 April

0726 Male and female soar low in front of east buttress, female solicits prey transfer with flutter glide posture. Male lands on east buttress face and female follows.

0746 Female flutter glides in front of east buttress and lands there.

0900 Female lands on snag next to pinnacle face, male mounts her, copulation takes place, male chitters and female eechips.

0903 Female treble whines while perched on snag above pinnacle face.

0934 Copultion occurs on snag 12 meters above pinnacle face.

1045 Male and female soaring together high in front of east buttress, female has prey in her talons.

1056 Female rings up over west cove with swift size prey in her talons, which she is plucking while soaring.

1625 Copulation occurs on rock perch 4 meters to west of pinnacle face.

4 April

1114 Echipping heard after both birds land on pinnacle face out of sight.

1118 Male is perched on upper snag above pinnacle face, female supplants him, male takes off and comes back and mounts female, copulation takes place.

5 May

0915 Observations from below the south rim. Prey transfer, male comes in to view waiking, female comes off of eyrie cliff face in flutter glide, she soars under the male approaching him, the prey transfer takes place. Female lands out of sight on upper portion of the cliff and male lands somewhere in the center of the cliff face.

0932 Echipping heard unidentified peregrine flies back and forth in front of eyrie cliff than out of sight to west.

16 May

1617 Observations from below the south rim. Unidentified peregrine flies in front of east portion of eyrie cliff and lands between two center caves.

1800 Male lands 3 meters west of eyrie, female comes out of eyrie and takes off to the west, male takes off and lands on eyrie ledge and walks into eyrie out of sight.

17 May

0747 Female flies to eyrie ledge, male comes into view on eyrie ledge, takes off and flies to the west.

APPENDIX B (Territorial Defense And Response To Other Raptors)

The following are significant interactions between the peregrines and other raptors.

1 April

1800 Adult red-tailed hawk stoops on golden eagle twelve times to the south of south rim spur.

4 April

0755 Male from south rim pair is stooped on by an adult female other than his mate. The south rim female was perched on the pinnacle face, then takes off and pursues the male and intruding female out of sight to west. All three birds return into view in front of west trail closure, then out of sight again to the west. This interaction was of a low intensity except the initial stoop by the intruding female. The female of south rim pair then lands on a snag 10 meters above pinnacle face and male lands on her to copulate, chittering and eechipping vocalization are heard. Male then flies out of sight into the west cove.

8 April

1810 Golden eagles copulate on east spur ridge of south rim.

13 April

1315 Female peregrine high intensity stoops on adult red-tailed hawk then flies to and lands in east buttress face.

1345 Female peregrine medium intensity stoop on raven in east cove.

19 April

1213 Male peregrine high intensity stoop on eagle over east spur ridge, then soars high over area and performs long undulating flights, then repeats this behavior.

22 April

0824 Female peregrine, high intensity stoops on red-tailed hawk, twice right below west trail closure.

29 April

1444 Golden eagle low intensity stoop on peregrine over east spur ridge.

1550 Red-tailed hawk, medium intensity stoops on peregrine once below west trail closure area then peregrine rings up over red-tailed hawk and stoops on it twice at high intensity.

1714 Male peregrine, high intensity stoop on eagle over east spur ridge.

4 May

0716 Female peregrine, heard cacking then spotted in high intensity stoop on eagle over east spur ridge.

16 May

1825 Female peregrine, high intensity stoops on pair of red-tailed hawks in front of west trial closure then flies east over east spur ridge and engages in high intensity stoops on eagle for four minets.

APPENDIX C (Casa Grande Significant Observation)

5 April

0700 Low intensity mock combat to south of Casa Grande, then more intense over the top.

0956 Male stoops on female nine times while she is perched in white wash crotch area of west face.

1049 Male and female soar together above Casa than female lands in white wash crotch area.

1709 Male caches prey item on south section of west face.

14 April

0912 Female peregrine heard waiking then soars under osprey in front of west face, male peregrine stoops on osprey then lands in white wash crotch.

0920 Female perched in white wash crotch preening for 40 minutes.

1016 Female heard waiking, she then soars under male who is hunting swifes above Casa.

1745 Male lands on ledge that female preened on for 40 minutes starting at 0920 this morning.

1829 Female lands on ledge that male used at 1745, 14 April and that she used at 0920 on 14 April.

15 April

0853 Female preens on ledge she used on 14 April at 0920 and 1829.

25 April

1852 Male peregrine soar above Casa for two minutes then glides southwest in front of Toll Mountain and stoops out of sight near the Pinnacles.

1900 Male hunting swifes above Casa make six shallow stoops, female apprears and male stoops on her, male then flapps and glides out of sight southwest near Pinnacles.

RECOMMENATIONS

1. The South Rim Trail section from the Boot Springs trail junction to the northeast # 4 backcountry campsite should remain closed from 15 January through the breeding season.

2. The signs at these trail closure areas should remain as they were in 1988, stating that the area is closed for resource management.

3. In the future construction of any type near peregrine eyries should be schedule to take place between 1 August and 1 January.

MAP # 1

Golden Eagle Territory

1988 Peregrine Eagle

1985 Peregrine Eagle

Red-tailed Hawk

1989

West Trail Closure

MEET X

East Trail Closure

TRAIL

TRAIL

TRAIL

Corral Spring

Spring

Radio Emory Peak
Tower 7825

Upper
Juniper Spring

Canyon

Beet
Rock

6600

535 X

0079

7375

6600

7326

7200

7410

7395

7260

7364

7400

5400

5008

5200

5800